

Nuclear safety and security interface: experience of the Russian Federation

Nuclear security aims at protection of people and assets, as well as the environment against the radiological consequences of malicious acts involving nuclear material, other radioactive substances or their associated facilities. Nuclear safety aims at protection of workers, the public and the environment from undue radiation hazards by means of ensuring proper operating conditions, prevention of accidents or mitigation of accident consequences.

While there are many apparent similarities in the areas of nuclear safety and nuclear security, it is important to take into consideration differences which are obvious in the process of documents development, as well as in the process of practical solutions implementation. Nominal merge of nuclear safety and nuclear security into one system is impossible because nature and principles of structure and functioning of the two systems are different, they are based on distinct legal bases, the level of responsibility of a state is not the same, as well as the terminology is diverse.

Nuclear security, as well as nuclear safety, has its main purpose - the protection of people, society and the environment. However, the sources of the threats in these two systems are completely different what dictates the principles and approaches to protection against these risks. For safety assurance, it is necessary to neutralize the risks arising from unintended events (natural occurrences, hardware failures, other internal events or interruptions) or human mistakes; whereas, for nuclear security it is necessary to minimize the risks arising from malicious acts (unauthorized removal and sabotage).

It is important to notice that nuclear security is an area which is based on sensitive information, often classified information (state secret). Approach to achievement of nuclear security objectives significantly differ from approach to achievement of nuclear safety objectives, inter alia because of obligation to information protection. Nuclear security does not allow for the same level of transparency and international obligations, as it is present in the field of nuclear safety. In the area of nuclear security, the IAEA acts only upon a request from the Member States what confirms the specific nature of the area as well.

It is necessary to highlight that interaction of nuclear safety and nuclear security is present constantly. Some elements, actions and documents serve the common purpose of overall protection. Such joint aspects require evaluation and coordination before they are applied. In the Russian Federation on the level of competent authorities and nuclear facilities, approach to interconnection of nuclear safety and nuclear security exists already on the pre-design stage. In the course of vulnerability analysis for a facility during the PPS design, nuclear safety specialists assists in identifying vulnerable parts of nuclear facility which are further protected by physical protection specialists. In addition, further examples of coordination of nuclear safety and nuclear security are as follows:

- development of one evacuation plan;
- design of premises where nuclear materials are located;
- rule of two (three) usage;
- establishment and sustainability of nuclear safety and security culture.

Considering all abovementioned, the following conclusion is reasonable: nuclear safety and nuclear security are independent, connected and mutually reinforcing areas. Concurrently, merging the two systems is unacceptable due to their different nature and characteristics. Interconnection and interface of the systems shall be taken into account in order to reach the common goal. Simultaneously, each of the two systems is equal and autonomous; none shall be subordinating or prevailing to the prejudice of the other.

One of the tasks of the IAEA and countries with significant experience of reliable, safe and secure operation of nuclear facilities and use of nuclear and other radioactive materials is to provide assistance and support upon request to newcomer countries interested in the development of nuclear infrastructure for launching nuclear power or nuclear research programmes. Such assistance and support involve exchange of the relevant experience which at the moment confirms that the approach of independent and coordinated systems - nuclear safety and nuclear security - is effective.

Gender

Female

State

Russian Federation

Author: Mrs AFANASYEVA, Taisiya (State Atomic Energy Corporation "Rosatom")

Presenter: Mrs AFANASYEVA, Taisiya (State Atomic Energy Corporation "Rosatom")

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